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Detailed and dynamic variable speed air source heat pump water heater model: combining a zonal tank model approach with a grey box heat pump model

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Highlights

- A dynamic grey box thermodynamic model is used to model the heat pump components
- A zonal model allows to model convection and thermal stratification in the tank
- An experimental set up is used to evaluate the model accuracy in various conditions
- The developed model allows to accurately predict the energy performance and comfort

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